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HISTORICAL FUND
of the
NAVY MEDICAL DEPARTMENT

A committee has been formed with representation from the Medical Corps, Dental Corps, Medical Service Corps, Nurse Corps, and Hospital Corps for the purpose of creating a fund to be used for the collection and maintenance of items of historical interest to the Medical Department. Such items will include, but will not be limited to, portraits, memorials, etc., designed to perpetuate the memory of distinguished members of the Navy Medical Department. These memorials will be displayed in the Bureau of Medicine and Surgery and at the National Naval Medical Center. Medical Department officers, active and inactive, are invited to make small contributions to the fund. It is emphasized that all donations must be on a strictly voluntary basis. Funds received will be deposited in a Washington, D. C. bank to the credit of the Navy Medical Department Historical Fund, and will be expended only as approved by the Committee or its successor and for the objectives stated.

It is anticipated that an historical committee will be organized at each of our medical activities. If you desire to contribute please do so through your local historical committee or send your check direct, payable to Navy Medical Department Historical Fund, and mail to:

Treasurer, N. M. D. Historical Fund
Bureau of Medicine and Surgery (Code 14)
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Policy

The U. S. Navy Medical News Letter, is basically an official Medical Department publication inviting the attention of officers of the Medical Department of the Regular Navy and Naval Reserve to timely up-to-date items of official and professional interest relative to medicine, dentistry, and allied sciences. The amount of information used is only that necessary to inform adequately officers of the Medical Department of the existence and source of such information. The items used are neither intended to be, nor are they, susceptible to use by any officer as a substitute for any item or article in its original form. All readers of the News Letter are urged to obtain the original of those items of particular interest to the individual.

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Tetanus in the United States

Tetanus remains a highly fatal disease with about 60 deaths occurring for every 100 cases reported in the United States. The stability of this picture in the past decade is striking in view of the increasing knowledge on the prevention and treatment of this condition. The effectiveness of preventive immunization practices—particularly that of the tetanus immunization series—has been well established. In World War II, there was ample demonstration of the effectiveness of mass tetanus prophylaxis in the military. Present evaluation of the long-term effectiveness of tetanus immunization indicates a persistence of the ability to respond to recall antigenic stimuli for considerable periods of time varying in maximal estimate from 10 years to a life duration status. The prophylaxis of the young infant with combined immunization against diphtheria, tetanus, and pertussis is now a tested and accepted practice in the care of the well child. It has been estimated that the frequency of tetanus has decreased 25-30 times under the influence of active immunization programs.

The incidence of tetanus in the United States has shown little change since 1947 when morbidity data were first published on a national basis. During the period 1947 - 1955, the reported annual morbidity rate averaged 0.3 cases per 100,000 population. In 1955, the most recent year for which national data are available, 462 cases were reported and 265 deaths were registered in the United States.

The monthly occurrence of reported cases shows a sharp seasonal pattern of increased late summer and fall incidence with an abrupt drop during the late winter months for each year during the 1951 - 1954 period.

Although more favorable prognosis in tetanus has been shown in recent years, reflected in the slightly declining mortality trend during the 1947 - 1955 period, the death-case ratio remains about 60 deaths per 100 cases.

While it is recognized that reporting practices may vary from state to state and that some under-reporting occurs, selected hospital studies indicate a fatality of treated cases of 33 deaths per 100 cases during the same approximate periods. For various earlier periods during the last half century, hospital studies yielded an average ratio of 43 deaths per 100 cases ranging from 29 to 50 deaths per 100 cases.

Another feature of the tetanus mortality in the United States is the frequency of deaths among nonwhites. During the 1947 - 1950 and the 1951 - 1954 periods, the rates for nonwhites were about five to six times higher than for whites. Both white and nonwhite males were affected more frequently than females, but it should be noted that the rates for nonwhite females were three times higher than for white males.

The age distribution of tetanus mortality indicates that more deaths are ascribed to tetanus among children under one year of age than in any other age group; this accounts for almost one-third of the tetanus deaths registered in the United States during the 1951 - 1954 period. For both whites and nonwhites, age-specific rates under one year are markedly higher than other age groups. After the first year of life, the age-specific rates drop abruptly, increasing slightly in the 65-year and over-age groups. Consistent differences are noted between whites and nonwhites in all age groups. An excess of male over female mortality prevails in all age groups except in the 20-44 year age group.

It is apparent that tetanus neonatorum is an important age category of tetanus. These infections are presumed to occur usually after delivery at home or after a hospital-delivered baby reaches home. The unhealed umbilicus is the usual site of contamination with tetanus spores and consequent toxin production.

A review of recent literature reveals that a few other sources of tetanus infections may be defined. Judging by published reports, post-operative or surgical tetanus is now a rare occurrence in this country, whereas about 30 years ago, it was said to account for up to 10% of cases. Chronic skin lesions or ulcers are thought to be important sources of tetanus infection, especially with subsequent operative procedures. For this reason, some authors have suggested that all patients who are to undergo operations for old contaminated wounds or chronic ulcers should be protected by active or passive immunizations. A final subgroup of the postoperative category which should be mentioned is tetanus following criminal abortion, although the extent cannot be estimated. Another category of tetanus is that among drug addicts using unsterilized needles, syringes, or contaminated drugs.

By far the largest category of tetanus cases are those following injury. Recently, emphasis has been placed on the incidence of tetanus following apparently minor or trivial injury. The most frequent injuries of this type were puncture wounds which are ideal for the anaerobic propagation of the tetanus bacillus. The current emphasis on minor wounds and lacerations

reflects the efficacy of medical practices today in the prevention of tetanus in the more severe wounds.

While the number of children immunized against tetanus steadily increases, two immediate problems seem apparent in the residual tetanus picture in the United States. These are neonatal tetanus, predominantly in the southern infant, and the incidence in all age groups of tetanus infections following apparently minor wounds.

The long-term goal for the elimination of tetanus neonatorum depends on increased public health education, particularly in the care of the newborn infant in the southern states.

The second problem is that of tetanus following apparently minor wounds. As the majority of these are not brought to the notice of a physician, the solution must be directed toward universal active tetanus immunization starting in childhood as well as education of the importance of minor wounds.

In previously immunized individuals, a booster dose may be given for a minor wound without fear of reactions, such as are seen with the administration of antitoxin. It has been estimated that passive immunization with antitoxin involves a risk of about one per 100,000 of fatal immediate serum reactions and about a 20-30% risk of delayed serum reactions. This necessary administration of antitoxin may also result in sensitivity to all horse serum preparations and deny the individual subsequent protection in incidents of other infections.

Finally, some reference should be made to the so-called high-risk groups defined by occupational exposure, such as agricultural workers, industrial and construction workers, or the military forces. With the exception of the last group—although there is much discussion in the literature of immunization programs for these individuals—there is little evidence that these groups incur tetanus more frequently. Studies should be made to determine whether high-risk groups exist and the emphasis in public health immunization programs should be directed to assure active immunization with tetanus toxoid to those risk groups and perhaps to all individuals if high-risk groups do not exist. Tetanus may eventually be an entirely preventable disease. (Axnick, N. W., Alexander, E. R., Tetanus in the United States - A Review of the Problem: Am. J. Pub. Health, 47: 1493-1500, December 1957)

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Please forward requests for Change of Address for the News Letter to: Commanding Officer, U. S. Naval Medical School, National Naval Medical Center, Bethesda 14, Md., giving full name, rank, corps, and old and new addresses.

Mucoid Impaction of the Bronchi

The authors' first awareness of the clinical entity that is designated mucoid impaction of the bronchi was in 1948 when the right chest of a 54-year old man was surgically explored for a probable carcinoma of the superior division of the right lower lobe. Resection and examination of the involved segment revealed the obstruction in the bronchus to have been caused by inspissated mucus which had become impacted in both branch bronchi. Other patients having this same clinical entity soon came to their attention. In 1951, a first report was made consisting of observations concerning 10 patients in whom a diagnosis of mucoid impaction of the bronchi had been made. Since that time, 26 additional patients with this condition have been observed. Further observations made in the care of these patients and their subsequent clinical courses are of value in clarifying the indications for surgical therapy and in determining the prognosis of this condition.

Although the symptom complex in this condition may seem quite varied, there are certain features of the history which may in themselves be diagnostic. Thirty of the 36 patients observed have given histories of asthma, hay fever, or chronic obstructive bronchitis. Twenty-six have complained of cough and expectoration of purulent sputum. Characteristically, the sputum is not foul. Sixteen patients remembered having coughed up hard rubbery plugs of mucus. After coughing out these plugs, drainage of a quantity of purulent material usually occurred, to be followed by rapid clinical improvement.

A localized pleuritic type of pain was present in 17 patients. This pain was more severe during acute episodes and would remit as the other symptoms subsided. A past history of frequent respiratory infections accompanied by fever was present in 14 patients. Although these episodes could be controlled by antibiotic therapy, they tended to recur.

Eleven, or approximately one-third of the patients, had had episodes of hemoptysis. In other patients, the sputum was blood-tinged periodically. Weight loss occurred in 5 patients, but in general this was associated with severe episodes of pulmonary infection.

Mucoid impaction of the bronchi should be considered in the differential diagnosis of any patient who has a history of asthma and complains of recurrent respiratory infections associated with hemoptysis and pain. Other conditions which this entity may simulate are pulmonary tuberculosis, putrid pulmonary abscess, fungal infections, and bronchogenic carcinoma.

There appears to be no age and sex incidence in this condition. The ages of the patients varied from 14 to 61 years. In patients more than 40 years old, the differentiation between mucoid impaction and malignancy may be difficult. The sex distribution was almost equal with 20 males and 16 females in this series.

Roentgenographic examination of the chest is the most valuable single measure for diagnosing and evaluating the course of this condition. The

typical appearance is one of segmental obstruction. The shadow-producing lesion is composed of the mucoid plugs and distal suppuration in the form of a granulomatous inflammation or cystic bronchiectasis. There may be a combination of a density limited to a segment of a lobe with an adjacent bronchiectatic segment. A shadow in a roentgenogram may be caused by a regional pneumonitis distal to a mucoid plug. This shadow may disappear slowly, leaving a small residual as the patient improves with medical management. Bronchography may demonstrate granulomatous masses, blocked bronchi, and bronchiectasis in a patient who has marked destruction of pulmonary tissue. In atypical cases, a sharply circumscribed nodule may be present in the periphery of a lobe indistinguishable from a small pulmonary neoplasm. The presence of a dense hilar shadow with pneumonitis beyond may also closely simulate the roentgenographic appearance of bronchogenic carcinoma.

Bronchoscopy and bronchography both play a definite role in the investigation of patients having mucoid impaction of the bronchi. Bronchoscopy may not allow visualization of the bronchial orifices that are plugged with accumulations of mucus because the condition is in the upper lobe in two-thirds of the patients. For this reason, this procedure may not be of value in therapy. If, however, the plugs are in the middle or lower lobes, it may be possible to remove them with grasping forceps or suction. This may improve bronchial drainage so that the suppuration beyond will have a chance to clear. At times, the mucoid plugs can be seen in the orifices of the branch bronchi of the upper lobes, but it is seldom possible to remove them. The main diagnostic value of bronchoscopy is in excluding the presence of a neoplasm. Bronchography becomes very important in the investigation of patients having mucoid impaction of the bronchi. This is especially true if there have been previous episodes of involvement of other segments. Bronchography may reveal not only the obstruction of the bronchi, but also the cystic bronchiectasis in other segments which remains as the residuum of previous episodes of mucoid impaction.

The experience of the authors with mucoid impactions of the bronchi includes 36 patients, 14 of whom were treated by medical measures and 22 by surgery. In general, medical management has been advised for the patients with multiple diffuse impactions and surgical removal for those having localized disease. Twelve of the 14 patients treated medically are unimproved. Of the 22 patients who had surgery, 3 were asymptomatic. There was one surgical mortality and one late death due to progressive pulmonary infection. Sixteen of the remaining 17 patients have been definitely improved. (Shaw, R. R., Paulson, D. L., Kee, J. L. Jr., Mucoid Impaction of the Bronchi - A Study of Thirty-Six Cases: *Am. Rev. Tuberc.*, 76: 970-981, December 1957)

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Pathogenesis in Manson's Schistosomiasis

Since the discovery of the parasite by Bilharz in 1851, schistosomiasis has been the subject of numerous publications concerned mainly with its clinical picture, pathology, and parasitology. The socio-economic and environmental factors that frequently accompany the disease have been mentioned, but perhaps inadequately stressed.

Because of serious infections among previously unexposed military personnel in Leyte and other areas of the Far Eastern Theater during World War II and the increasing incidence of the disease in many of the under-developed areas of the world, it is timely to analyze certain of its aspects. The extreme seriousness of the medical and social problems represented by large numbers of acutely and chronically infected patients in an environment remote from endemic areas must be emphasized. The shrinkage of distances by rapid air travel as well as the increased emigration to larger cities may serve to increase its incidence, and the late manifestations attributed to the disease will not be rarities in the United States mainland. The impact that this form of parasitosis may have on the Armed Forces stationed in endemic areas in South America, the West Indies, the Middle East, Africa and the Pacific areas must be seriously considered as a problem of medical logistics.

The problems that may arise during the clinical evaluation are illustrated with cases revealing the various facets of the disease. The difficulties encountered in the proper interpretation of the symptomatology attributed to the infection become apparent. The comments on each case are based on an analysis of 400 cases studied during the last 12 years in an attempt to elucidate the natural history of the disease. The role of socio-economic and nutritional factors in the development and perpetuation of symptoms attributable to the disease are considered.

The clinical picture of Manson's schistosomiasis is so protean that most of the cases remain unrecognized unless stool examinations and/or rectal biopsy specimens are studied. When clinically recognized, most of the patients present symptoms pointing to intestinal pathology. In some instances, three stages may be recognized: the stage of invasion, migration, and maturation; the stage of early oviposition and egg extrusion which is dominated by allergic and gastrointestinal symptoms; and the stage of late egg production with signs of hypersensitivity and vascular and connective tissue proliferation. The late pathologic alterations, dominated by obstructive vascular phenomena which may lead to serious hemodynamic alterations, such as portal and pulmonary hypertension, are seen among the heavily infected, poorly nourished patients, frequently affected by other serious illnesses. The selective or complete clinical picture of hypersplenism is infrequently observed. The picture of chronic cor pulmonale and portal hypertension with fragile esophageal varices, may occur as a result of obstructive vascular changes.

The clinical picture of the acute phase may be similar to that of an acute infectious disease (typhoid fever, salmonellosis, bacillary or amebic dysentery, trichinosis, et cetera), but generally the earliest phase of the disease is mistaken for a mild nonspecific enteritis. Very few patients seek the services of the physician at this stage or in the later stages unless they suffer from chronic diarrhea, bleeding esophageal varices, or signs of portal and/or pulmonary hypertension.

It must be emphasized that confusion has arisen from the categorization used in the description of the natural history of the disease. The unfortunate terms of intestinal and visceral schistosomiasis have led to the assumption that the disease affects dominantly at one time the hollow viscera (intestines), and at other times, solid viscera, the liver, and spleen. It is pertinent to state that from the outset frequent pathologic alterations occur in the hollow and solid viscera and that the liver, intestines, and lungs seldom escape the effects of the disease. Perhaps the selection of extremely severe exotic examples for reports in the literature has led to an inaccurate evaluation of the destructiveness of the disease. The occurrence of hepatosplenomegaly is mainly governed by the state of nutrition rather than by the parasite in those infected. Cases with splenomegaly and esophageal varices due to portal hypertension frequently present diarrhea attributable to intestinal involvement; yet these cases are classified as visceral schistosomiasis.

A better understanding of the pathogenesis of the disease will be aided by consideration of the life cycle of the S. mansoni parasite in the human host. The cercariae penetrate the skin or mucous membranes and in some instances this is accompanied by mild pruritus and punctate erythema. The metacercariae migrate through the lymphatic and venous systems of the lungs whence they pass to the left side of the heart, the general circulation, and finally reach the intrahepatic portal veins where each matures into a male or female adult worm about 27 to 28 days after entry. After fertilization the female worm migrates to smaller branches of the mesenteric, colonic, and hemorrhoidal veins, mostly in the submucosa and mucosa of the distal colon and rectum for oviposition. Most often there are no appreciable symptoms, but within a period ranging from 21 to 42 days, the acute symptomatology may appear with variable degrees of fever, allergic manifestations with eosinophilia, cough, abdominal pain, diarrhea, hepatomegaly, and splenomegaly.

The massively infected, previously unexposed and/or poorly nourished patient presents violent clinical manifestations from the outset of the disease; the severity may depend in part upon organ hypersensitivity. The symptoms are mainly referred to the gastrointestinal tract, liver, and lungs. Generally, the degree of the severity of the allergic state may be measured by the eosinophilic response. The persistence of intense eosinophilia appears to represent a constant unrelenting allergic response with the adult parasite and eggs

as the sources of allergens. Chills, fever, diaphoresis, headache and general malaise with body aches and pains at onset are manifestations of toxemia. Early severe diarrhea is part of the hypersensitivity state with probably the secondary factor of egg extrusion and localized intestinal allergy. The diarrhea is frequently accompanied by nausea, vomiting, and generalized abdominal pain.

During the chronic phase of the disease, the patient may suffer from obstipation or from constipation alternating with diarrhea in the presence of numerous ova in the colonic and rectal mucosa.

It must be emphasized that many patients die with, but few die from, Manson's schistosomiasis and that in most instances there are complicating diseases of variable severity, but generally of greater importance from the prognostic point of view than is this form of parasitosis. The earliest clinical manifestations remain unaffected by early treatment. These and the late symptoms are controlled only by the development of adequate body defenses.

Although most of the cases of Manson's schistosomiasis are mild and remain undiagnosed, extensive pathologic alterations may occur with heavy infestations when accompanied by a poor diet. In some instances, the picture may be dominated by portal hypertension, with fragile esophageal varices, and congestive splenomegaly with signs of hypersplenism. Cirrhosis of the liver is mainly governed by poor nutrition, but is undoubtedly influenced by the parasitosis. In some cases, the prominent feature is chronic cor pulmonale, with pulmonary hypertension from arteriolitis (egg embolization and superimposed pneumonitis).

The severity of the clinical picture is chiefly influenced by socioeconomic factors and by the adequacy of the defensive mechanism of the host rather than by the parasitosis per se. Thus, death with, but not from, Manson's schistosomiasis is the general rule. Because there are no adequate antischistosomal agents, it seems that curability depends mainly on the development of immunity. (R. W. Diaz-Rivera, et al., *The Pathogenesis of Manson's Schistosomiasis: Ann. Int. Med.*, 47: 1082-1106, December 1957)

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Findings in Alleged and True Hypothyroidism

Among the various endocrine deficiency states, hypothyroidism has been one of the most frequently diagnosed entities. The striking signs and symptoms of myxedema are generally quite well known to physicians and diagnosis has been regarded as relatively easy, even without laboratory studies. The possibility that there might be patients with only a few of the classic signs and symptoms of myxedema has prompted much speculation and study.

With the present advances in diagnostic technique, it would seem that the diagnosis of thyroid disorders would at last be reduced to relative simplicity. Although much improvement in diagnostic accuracy has resulted, there remain many cases that fit into a borderline category. Because the newer diagnostic methods are frequently available only to physicians practicing in larger centers, it would seem imperative to re-assess the validity of older and more generally available methods of diagnosis.

Many physicians have resorted to the administration of thyroid, feeling that this would be necessary in any event and that, if thyroid hormone deficiency is present, subjective and objective improvement will result. This is true in the patient with myxedema, but other cases with minimal symptomatology and low BMR's have failed in many instances to show improvement.

The present study was carried out in order to compare the clinical picture and the more commonly employed and accepted laboratory tests in alleged hypothyroid and myxedema states. It was hoped that such a study, involving a significant group of cases, would help to establish the validity and diagnostic accuracy of the various methods employed. Because two or more methods of testing are frequently used, an attempt was made to assess the percentage of accuracy for each test separately and also when paired with all other methods.

In the evaluation of data in the present study, an attempt was made to separate patients who might be considered to have low normal or so-called hypometabolism from those of true myxedema. Opinions are divided as to whether a hypothyroid state, as opposed to the euthyroid and myxedema state, really exists. In the present study, obviously euthyroid individuals were excluded from the study, inasmuch as such a group would add nothing to the differentiation, and ample evidence exists as to what constitutes normality as regards laboratory determinations.

From the standpoint of clinical evaluation, the classic signs and symptoms were confirmed by this study and the two principal manifestations—weakness and lethargy—were prominently noted in both groups. The remaining signs and symptoms were, in general, significantly different in the two groups, but it was apparent that considerable room for confusion did exist in some cases. The presence of "nervousness" in all its various forms was the principal feature characterizing the alleged hypothyroid group.

Because of the possible confusion clinically, resort to laboratory evaluation is usually necessary. The results of the various tests expressed in percentage of abnormality are noted. The summation of percentage of abnormality is summarized by pairing of the tests in tables. In retrospect, most individuals in the alleged hypothyroid group were believed to be euthyroid. The basis for this rests in the evaluation of the patients clinically by the authors and in the finding of a normal PBI and radioiodine uptake values because it has been established that these tests are the most reliable and critical. It must be admitted that five patients (4.3%) had

borderline findings and these may represent a borderline or "true hypothyroid" group. As has been noted by other writers, the combination of PBI and I^{131} uptake tests was the most useful for differentiating the alleged hypothyroid and myxedema patients. All tests—singly or in combination—were adequate to confirm the presence of myxedema.

Statistical evaluation revealed a significant difference between the results of all tests in both groups. In the case of the BMR and cholesterol, however, there appears to be a considerable standard deviation from the mean values and the resulting overlapping is probably responsible for the confusion which has been noted clinically and which limits their usefulness. The BMR in particular is the least sensitive and the I^{131} uptake the most sensitive. The PBI results would appear much more sensitive if two myxedema patients in whom high values were noted had been removed from the study. These were included, however, to demonstrate the difficulties encountered in this very sensitive determination. Both individuals were found to have previously ingested iodides, but this was denied prior to testing.

Correlation coefficients were performed in an attempt to determine if the abnormalities in the various tests were of proportionate degree. This could not be demonstrated, even at the 5% level of significance. The fact that the degree of abnormality of the various tests is quite variable probably accounts for some of the difficulties noted in interpretation in a given patient. The basis of these differences probably lies in the different physiologic processes being measured.

Although this study was concerned only with diagnosis and not with therapy, it must be admitted that in cases where the clinical status of the patient is in doubt, and where the PBI and/or the I^{131} uptake cannot be performed, or where these tests are borderline, a trial of therapy would appear to be indicated. In those who do not respond to dessicated thyroid, a trial with tri-iodothyronine may be of value, although there has been insufficient experience with this medication to the present time. (LtCol J. A. Sheedy (MC) USA, Major W. F. Lienhard (MC) USA, Comparison of Clinical and Laboratory Findings in Alleged and True Hypothyroidism: Ann. Int. Med., 47: 1184-1199, December 1957)

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Bilateral Ureteral Obstruction

An inflammatory retroperitoneal process with distinct histological characteristics has recently been described by a number of observers as a cause of bilateral ureteral obstruction with subsequent renal failure. In the 16 reported cases, the pathological findings and clinical manifestations have been similar. A seventeenth case is now added and with the cooperation of the earlier authors follow-up reports are included on 14 of the 16.

From this data, it is possible to draw tentative inferences as to the natural history of this process, its pathology, and the most appropriate approach to treatment. The etiology is obscure, but therapy directed at insuring adequate drainage and controlling infection can reverse a course which may otherwise be fatal.

The onset and development of the process are so insidious that, on admission, renal failure was present or imminent in all except 2 patients. The duration of symptoms prior to hospitalization was from 10 days to 2 years; in 9 of the 15 for whom this was recorded, it was 3 months or longer. One patient had a laminectomy and one a hysterectomy in consequence of these symptoms. Pain—usually dull—was present in 16 of the 17 cases; in 7 it was unilateral and in 9 bilateral, usually involving the flank, loin, or abdomen. The urinary output was affected in 9 patients—more than half of the series. Of these, 7 had anuria and 2 had oliguria. Impotence was a symptom in 1 case; fatigue, nausea, anorexia, and weight loss were common, probably from the developing uremia.

All of the patients reported were operated upon for relief of obstruction, but because of the varying problems they presented when they came to treatment, it is difficult to generalize about the efficacy of specific procedures. The following were undertaken in this series: (1) nephrectomy, (2) nephrostomy only, (3) retroperitoneal ureterolysis with or without temporary nephrostomy, (4) ureterolysis with intraperitoneal ureteral transplantation, (5) exploratory laparotomy and biopsy only.

Nephrectomy was performed on 3 patients; each subsequently underwent operation on the other side. Previously, one had had bilateral nephrostomies. The nephrectomy was done a year later and retroperitoneal lysis of the ureter on the other side 2 years after that. No late follow-up report is available. Another also had ureterolysis and 7 years later was reported as having a normal intravenous pyelogram and negative urine with apparently complete clinical recovery. The third patient had a right nephrectomy in 1944, was carried successfully on antibiotics between 1948 and 1955, and then died of renal failure after an attempted emergency nephrostomy 11 and 1/2 years after the first operation. It is apparent that every possible effort should be made to salvage renal tissue because the process is usually bilateral.

It is apparent that lysis—by one method or another—is a useful procedure. It would also appear, however, that treatment with antibiotics may be effective without surgical intervention. The patient here presented will provide an excellent opportunity—as time passes—to compare the two methods. It is of particular interest to note that the unoperated side showed improvement during treatment, regressed when treatment was prematurely interrupted, then improved again when it was resumed and has maintained that improvement for a year. Theoretically, there is no reason why a process of inflammatory origin might not be completely cured by appropriate

medical therapy if this be instituted before irreversible damage is done. Unfortunately, the diagnosis cannot yet be absolutely established without operative exposure. For this reason, and because some patients may require operation for drainage, it would be premature categorically to advise against surgical intervention. Until more reports are available, each case will have to be judged on its merits. Two principles of therapy emerge: the relief of obstruction and the preservation of renal tissue. If the former can be accomplished without operation, a trial on conservative treatment may be justified. (Talbot, H. S., Mahoney, E. M., Obstruction of Both Ureters by Retroperitoneal Inflammation: *J. Urol.*, 78: 738-746, December 1957)

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Carcinoma of the Thyroid

That carcinoma of the thyroid is a disease of the young and is pre-dominant among females is well established. Although twice as many males were admitted to this installation during the study period, thirty of sixty-four patients with thyroid malignancy were females. The incidence in this series has been broken down into three age groups: 1 to 15 years, 16 to 30, and 31 to 76 years. There were two, thirty-nine, and twenty-three patients in these groups respectively. The youngest patient was 11 years old, the oldest, 76. In this series, papillary carcinoma was the most common malignancy of the thyroid in all three age groups, but was less marked in the latter age group. Crile emphasized that thyroid malignancy in the older age group is of a more malignant type. Because the more malignant tumors are found in elderly people, the prognosis is far poorer in this group. Two of three deaths in this series were in the older group. It has been shown that most thyroid nodules in children are malignant.

The clinical significance of the solitary nodule of the thyroid as an index to malignancy has been stressed by many surgeons. The physical findings and symptomatology of early carcinoma of the thyroid are so vague—indeed, at times nonexistent—that one needs some working basis for selection of cases for operation. Thirty-six of the sixty-four patients (56%) in this series had clinically solitary nodules either in the thyroid alone or associated with cervical metastasis. Other authors have pointed out that most cases of multinodular thyroids carry a much lower incidence of carcinoma. In this series, none of the sixty-four patients had clinical findings of multiple nodules in the thyroid gland. Three of the sixty-four patients, when first seen, had bilateral cervical metastases. On admission, 58% of the patients in this series had cervical metastases.

The period of time which elapses between the onset of the initial symptoms and the institution of therapy has also been broken down into

three periods. There were thirteen patients (20%) who were not aware of thyroid or cervical node enlargement. This demonstrates and emphasizes the importance of proper examination of the neck in all routine physical examinations even though there are no symptoms referable to the thyroid. Approximately 1% of cases of hyperthyroidism are associated with thyroid malignancy. Only one of the sixty-four patients in this series had toxic symptoms. These were questionable and probably existed on a psychogenic basis. The rapidly growing lesions of the thyroid should be regarded with greater suspicion than the slowly growing or stationary ones. Such rapidly growing lesions are most commonly seen in the oldest age group and are usually of the more malignant type.

Based on the experience gained from the study of these patients, the authors designed a general outline for the treatment of nodular and carcinomatous conditions of the thyroid gland. Although each patient should be treated individually, specific recommendations for the treatment of clinically nodular conditions of the thyroid gland are: (1) Multiple nodules should be treated by total thyroidectomy or excision of all nodules and only a normal thyroid gland should be left; (2) Asymmetrical enlargement of the thyroid without nodules should be treated by lobectomy; (3) Solitary nodules should be excised with a wide margin of normal tissue or preferably by lobectomy; (4) A nodular thyroid plus significant enlargement of the cervical lymph nodes demands biopsy of the cervical lymph nodes through a collar type incision. The surgeon should be prepared to perform total thyroidectomy and radical neck dissection if the frozen section diagnosis confirms metastatic cancer of the thyroid; (5) A lobectomy should be performed for thyroid nodules occurring in children or in men.

Special indications for surgery in carcinoma of the thyroid should include: (1) Adenomas of questionable or borderline malignancy as determined by gross and microscopic examination should be treated by lobectomy; (2) Papillary and follicular carcinoma should be treated by total thyroidectomy and radical neck dissection of the involved side when cervical metastases are proved histologically; (3) Undifferentiated or spindle cell carcinoma should be treated by total thyroidectomy and radical neck dissection only if there are no distant or inaccessible metastases; (4) Histologically proved cervical lymph node metastases without evidence of thyroid nodule should be treated by radical neck dissection and total thyroidectomy. (Major J. B. Jay MC USAF, Major B. G. Streete MC USAS, AND Colonel R. T. Gants MC USA, Carcinoma of the Thyroid - Review of Sixty-Four Cases: Am. J. Surg., 95: 45-50, January 1958)

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The printing of this publication was approved by the Director of the Bureau of the Budget, 16 May 1955.

Lymphedema of the Arms and Legs

Lymphedema often presents a perplexing problem in diagnosis and management. Because of lack of familiarity with various types of this condition, the diagnosis is confused with that of cardiac and renal disease. Proper treatment is thereby delayed. The condition worsens—often irrevocably.

Successful treatment of lymphedema depends upon complete cooperation between physician and patient in applying physiologic and psychologic principles over long periods of time. These require the application of modalities that are often uncomfortable and tedious. The physician must maintain optimism, patience, and enthusiasm. This may be difficult in the face of slow improvement. At times, he will be rewarded by marked rapid improvement, especially in cases that involve the arm. However, in lymphedema of the leg, he may have to be content with simply holding the condition in check. In many cases without proper therapy the edema progresses to elephantine size, causing serious difficulty and concern to physician and patient alike.

Lymphedema refers to edema resulting from obstruction of lymphatic flow. Microscopically, the early changes consist of dilatation of the lymphatics and widening of the tissue spaces due to edema. In long-standing lymphedema, there is proliferation of the connective tissue, often a variable degree of inflammatory cell infiltration, pigmentation, and fibrotic thickening of the dilated lymphatics.

The most common form of lymphedema of the arm follows radical mastectomy. This type of lymphedema is characteristically a progressive, disabling, and often painful condition. In some cases, the swelling occurs soon after operation; in others, edema formation may not develop for as long as 5 years. It usually appears first in the hand and accumulates proximally, although in some patients, the reverse has been true. The increased weight of the arm pulls on the nerve roots, causing a neuralgia. The pain often disappears when the swelling is reduced by treatment.

Swollen arms and legs are esthetically disturbing. They may be devastating to the ego of otherwise well-adjusted women. Several patients have been recluses until reduction in swelling encouraged them to abandon their seclusion. Even minor degrees of swelling may be sufficient to keep women from engaging in activities requiring a costume that reveals the abnormality.

Edematous extremities are often the site of attacks of cellulitis and erysipelas. It is apparent from this clinical observation that tissue immunity is reduced in these areas with slow lymph flow. The fact that lymph flow is slow is readily demonstrated by the intracutaneous injection of dyes in the manner described by McMaster. A simple furuncle that is quickly healed in a normal arm may become a large spreading infection

in one with lymphedema. Elevation, moist heat, and appropriate antimicrobial drugs are usually quickly curative.

The etiology of edema of an extremity following surgery is a controversial subject. It is sufficient to say that the surgical and radiation destruction of main lymph channels often does not leave sufficient patent vessels for adequate drainage. Fluid accumulates in the tissue spaces. In time, there is a connective tissue proliferation that converts the boggy areas into a fibrotic mass.

The most common form of swollen leg is lymphedema praecox. This condition usually occurs in young women and rarely in men. It develops most frequently shortly after the onset of the menses. Occasionally, some cases occur as late in life as 40 years of age. The later it appears, the milder it is apt to be.

Edema starts in a single foot or ankle. At first, only a slight puffiness is present. Gradually it increases, spreading up the leg, sometimes involving tissues of the thighs and buttocks. It may be unilateral for many years before starting in the other leg. In the beginning, the edema is reduced during the night and develops during the waking hours when the patient is up. Any constricting garment, such as a circular garter or girdle, causes it to increase. Girdles are particularly harmful for they are designed for women in the upright posture only. When women sit, the girdle stretches, exerting pressure across the groin, and it acts as a tourniquet to impede lymph flow. Sitting for many hours in vehicles, theaters, or card-playing sessions is a strain on even a normal lymph system.

Good lymph flow requires body movement. During active sports or walking, the edema tends to decrease. Walking in deep water produces the unique situation of a maximum compression pressure at the foot, decreasing progressively up the leg. When this is combined with the pumping action of muscular motion, it presents an ideal method of squeezing fluid out of the leg.

The etiology of lymphedema praecox is completely obscure. Clinically, it seems as if there were a congenital blockage of the lymph channels or that the total lymph drainage system is not efficient enough. Because of the frequent episodes of cellulitis, the condition is often confused with thrombophlebitis. Medical management consists of the use of gravity, compression, physiotherapy, dehydration, and activity. Patients are encouraged to resume full activity and sports, wearing an elastic stocking or sleeve. The pumping action of muscular movement on venous return and lymph flow is well known. (Foley, W. T., *The Treatment of Lymphedema of the Arms and Legs*: GP, XVII: 83-89, January 1958)

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Nonpenetrating Injuries of the Abdomen

The following summary of an article on nonpenetrating injuries of the abdomen is presented to reemphasize the importance of early diagnosis and treatment in this type of injury. The original article also contained principles of surgical procedures that should be followed in the care of such patients.

The danger of visceral rupture or fatal hemorrhage makes this one of the most important injuries. The doctor's decision as to early and correct diagnosis and early proper intervention may make the difference between life and death for the injured person. The mortality in nonpenetrating injuries of the abdomen is estimated to be 20 to 30%.

Nonpenetrating injuries are frequently a part of multiple injuries, such as those that may occur in automobile accidents. In such cases, one must always keep in mind the possibility of abdominal injury, not only at the initial examination, but throughout convalescence.

The cause of intra-abdominal injury may be a localized blow, e. g., in being thrown against a steering wheel, or being crushed between two trucks, a truck and a wall, or from falling objects.

The commonest types are to fixed organs—liver, kidney, spleen, or urinary bladder. The most frequent sites of injuries to the intestinal tract are near points of fixation—the ligament of Treitz, the ileocecal junction, and the area adjacent to the attached portions of the large intestine. Other injuries may be rupture of the diaphragm, avulsion of mesentery of the small bowel, mesenteric thrombosis, and rupture of the pancreas or stomach. Retroperitoneal rupture of the duodenum is rare, but highly fatal, when it does occur. Rupture of the gallbladder, hemorrhage of the adrenal glands, and rupture of major blood vessels have been reported.

Diagnosis

History. The history, if obtainable, may be of considerable importance. The nature of the violence and the portion of the body that received the injury aid in making a diagnosis. Did the patient vomit? If so, was there blood in the vomitus? The urine should also be checked for signs of blood. Is there a previous history of ulceration in the gastrointestinal tract? Scarred areas are more subject to subcutaneous rupture.

Shock. It is to be remembered that lowered blood pressure is a late, not an early, sign of shock. If shock is expected, start shock treatment, do not wait for the blood pressure to fall. Plasma expanders should be used immediately, followed by properly checked blood as soon as it can be obtained.

Examination. Thorough examination must be made for abdominal tenderness, muscle rigidity, rebound tenderness, contusion of the abdominal wall, obliteration of liver dullness, pain in the shoulder, and an abdomen quiet to auscultation.

Laboratory Studies. There should be blood typing with Rh factor determination and cross-matching. In addition, blood count, hematocrit, blood volume, urinalysis, and serum amylase should be performed.

Roentgenologic Studies. Negative findings do not rule out rupture of a hollow viscus. An x-ray film positive for free air in the abdominal cavity is important. Bone fractures may be observed. Intravenous pyelograms for kidney damage are important followed by cystograms.

Abdominal Tap. This procedure may determine the need for surgical exploration in the questionable case.

Early Care

Time of Operation. Definite evidence of hollow-viscus injury requires an operation at the earliest time the patient's condition will permit. Some progressing signs of intra-abdominal injury are: increase in pulse rate, hematocrit drop, peritoneal irritation increase or spread, vomiting, and distention of the abdomen.

(Kennedy, R.H., Nonpenetrating Injuries of the Abdomen: Arch. Surg., 75: 957-963, December 1957) (OccMedDispDiv, BuMed)

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Exposure of Eyes to Soldering Fumes

The usual exposure of a tinsmith to soldering or brazing fumes should not involve any injury to the cornea. The fume composition would depend upon the flux used and the metal surface involved. When the soldering flux is muriatic acid or muriatic acid "cut" with zinc to form zinc chloride, the fume would contain, in addition to water vapor, a very small amount of hydrochloric acid and zinc or copper, as the case may be, in the form of oxide. When, as in brazing, the flux is generally borax, this would be present in the fume. In neither instance would the concentration be such as to injure the cornea. Should the acid flux be spattered directly into the eye, an acid burn of the cornea would result; the severity of the burn would depend upon the amount of acid involved and the duration of the contact. Years of observation of a large number of solderers have not disclosed any injuries to the cornea from fume exposure. (Exposure of Eyes to Soldering Fumes: J.A.M.A., 165: 764-765, October 12, 1957) (OccMedDispDiv, BuMed)

Initial Treatment of Burns in Mass Casualties

A few patients with extensive burns can completely engage the personnel and much of the working space of the emergency room of a hospital. A large number of patients have to be handled in a different manner if they are to receive any reasonable emergency treatment. Sufficient space to handle many casualties within minutes or hours is an absolute requirement for any hospital. Under disaster conditions, practically all burned patients should receive prophylactic antibiotics. Where time is important, supportive therapy for extensive burns must be emphasized and a predetermined standardized procedure employed.

A method of management of mass burn casualties is needed for efficient and rapid disposition of patients by a minimum of personnel. Planning for organization, space utilization, sorting, immediate treatment, and preparation for definitive care is important. (Brown K. L., Glover, D. M., Initial Treatment of Burns in Mass Casualties: J. A. M. A., 165: 643-646, October 12, 1957) (OccMedDispDiv, BuMed)

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Medical and Dental Research

The Office of Naval Research has funded in fiscal year 1958 the following projects in the fields of Medicine and Dentistry.

<u>Title</u>	<u>Investigator</u>	<u>Institution</u>
Proteins and Mucopolysaccharides of Teeth	Walter C. Hess	Georgetown Univ.
Mechanism of Calcification and the Caries Problem	Albert E. Sobel	Jewish Hospital of Brooklyn
The Mechanism of Phosphatase Inhibitors in Caries Prevention	Henry M. Leicester Sidney Epstein	College of Physicians and Surgeons San Francisco
Effects of Inorganic Components of Foods on Caries Incidence	Robert S. Harris Abraham Nizel	Massachusetts Inst. of Technology
Effects of a Single Amino Acid Deficiency on Tooth Development	Lucien A. Bavetta	Univ. of Southern California

<u>Title</u>	<u>Investigator</u>	<u>Institution</u>
Relationship Between Infection and Pathology in the Apical-Periapical Region	Lucile S. Smith Paul R. Thomassen	College of Physicians and Surgeons San Francisco
Medical Advisory Committee	Dr. R. Keith Cannan	National Academy of Sciences, National Research Council
Bibliography of Saliva	C. R. Brown	Library of Congress
Studies on the Prevention of Tooth Decay	James R. Shaw	Harvard School of Dental Medicine
Use of Germ-Free Animals in the Study of Dental Caries	Frank J. Orland	Univ. of Chicago Zoller Memorial Dental Clinic
Preservation of Permanent Teeth in Humans	Isaac Schour Maury Massler	Univ. of Illinois
Physiological and Pathological Study of Experimental Immersion Foot	H. Montgomery	Univ. of Pennsylvania
Survival of Transplanted Human Living Homologous Grafts after Increasing Periods of Preservation just above Freezing Temperature	Robert F. Hagerty	Medical College of South Carolina
Study of Long-Term Preservation of Human Skin for Use as a Temporary Covering in Extensive Burns	Nicholas G. Georgiade	Duke University
A Clinical Evaluation of Bovine Embryo Skin as a Temporary Biological Dressing on Burned Patients	T. G. Blocker, Jr.	Univ. of Texas Medical Branch
The Use of Ethylenediamine Treated Bone in Cross-Species Grafting	Frank E. Stinchfield L. A. Hurley	College of Physicians and Surgeons Columbia University

<u>Title</u>	<u>Investigator</u>	<u>Institution</u>
Preservation of Blood	M. M. Strumia	Bryn Mawr Hospital
The Application of the Quartz Rod Illumination Technic in the Study of Normal and Abnormal Bone Development	I. R. Telford Lloyd E. Church	George Washington University
Endocrine and Metabolic Response to Trauma	Mark A. Hayes	Yale University
Study of the Fundamental Reason for the Retention of Incompletely Covered Foreign Bodies in Tissues with Special Application to Replacement of Opaque Corneas with Plastic Material	William, Stone, Jr.	Massachusetts Eye and Ear Infirmary
Function and Morphology of Blood Vessels	H. B. Shumacker, Jr.	Univ. of Indiana
Investigation of Virus Diseases of Taiwan and the Far East	J. Thomas Grayston Paul B. Johnston	Univ. of Chicago
Abnormal Distention Following Unilateral Pulmonary Resection	A. A. Siebens	State Univ. of New York
Studies on the Preparation and Preservation of Red Cells Using the Cohn Blood Fractionator	James L. Tullis	Protein Foundation, Inc.
Study of Matrix Replacement in Bone	G. C. Godman	Columbia University
Effects of Air Pollution on Susceptibility to Respiratory Infections	Clinton H. Thienes	Huntington Memorial Hospital, Pasadena
Color-Translating Ultraviolet Microscope in Biologic Research	Shields Warren	New England Deaconess Hospital

<u>Title</u>	<u>Investigator</u>	<u>Institution</u>
Inhalation Hazards Potentially Attendant on Recent Innovations in Military Transport	G. W. H. Schepers	Univ. of Michigan

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Recent Research Reports

Naval Medical Research Institute, NNMC, Bethesda, Md.

1. A Study of Nitrogen and Uric Acid Patterns in the Excreta and Body Tissues of Adult Aedes Aegypti. NM 005 048.06.09, 19 April 1957.
2. Use of Small Laboratory Animals in Medical Radiation Biology. V. Comparative Lethal Effect of 200, 2000, KVP X- and Co⁶⁰ Gamma Rays in Guinea Pigs. NM 62 02 00.01.01, 22 May 1957.
3. Mechanism of Action of Ryanodine of Skeletal Muscle. NM 01 01 00.01.01, 18 July 1957.
4. Function and Capacity of the Adrenal Cortex Immediately Before Radiation Sickness Death. NM 01 02 00.02.01, 30 July 1957.
5. Effects of Single Lethal Dose of Total-Body Gamma-Co⁶⁰ Radiation on Calves. NM 01 02 00.02.02, 30 July 1957.
6. Pharmacological Action of Nona and Decacholiniumdiacetate Dibromide on Isolated Ileal Segments of Rabbit and Guinea Pig. NM 02 02 00.01.01, 29 August 1957.
7. Pharmacological Action of a Series of Cholinium Compounds (Polymethylene-Bis-a, w -(2' - Hydroxyethyl)dimethylammonium) Dibromide) on Isolated Ileal Segments of Rabbit and Guinea Pig. NM 02 02 00.01.02, 29 August 1957.
8. A New Design in a Dual-Drum, Multi-Speed Continuous-Feed Kymograph. Memorandum Report 57-3, 29 August 1957.
9. Design of a Vernier Caliper Reading Stand for Use in the Laboratory. Memorandum Report 57-4, 29 August 1957.
10. Design of a Power Supply Unit for Electrosensitive Paper Scribes. Memorandum Report 57-5, 29 August 1957.
11. Thermal Radiation Burns in Rabbits. V. The Relation of Burn Severity to Some Physical Characteristics of the Burn Experience. NM 007 081.03.09, 3 September 1957.
12. Simple Condensers for Ribbon-Filament and Mercury-Vapor Microscope Lamps. Memorandum Report 57-6 related to NM 52 01 00.02, 23 September 1957.
13. Influence of Varying Mineral Intake on Weight and Caries in the NMRI Strain of Osborne-Mendel Rat. NM 75 01 00.01.01, 30 September 1957.

Naval Medical Research Institute, NNMC, Bethesda, Md. (continued)

14. Growth and Manometric Studies on Carbohydrate Utilization by *Shigella Flexneri*. NM 52 04 00.02.01, 5 November 1957.
15. Experimental Brain Injury During Hypothermia. NM 71 05 00.03.02, 6 November 1957.
16. An Anomalous Esterification of Cis-D, L-2-Dimethylaminocyclohexanol. NM 02 02 00.01.03, 6 November 1957.

Naval Medical Research Unit No. 3, Cairo, Egypt

1. Egyptian Snakes of the Genus *Psammophis*. NM 005 050.39.59, February 1957.
2. Two North African Ixodes Ticks: *Ixodes* Sp. Nov. from Egyptian Desert Fox Cubs. A Redescription of the Female and a Description of the Male of *I. Festai Rondelli*, 1926 (Ixodoidea, Ixodidae), NM 005 050 .29.31, February 1957.
3. Observations on Egyptian *Hyalomma* Ticks (Ixodoidea, Ixodidae). 4. Infestation Data from Wild Mammals. NM 005 050.39.56, March 1957.

Naval Medical Research Unit No. 4, Great Lakes, Ill.

1. Cytopathogenic Agent Isolated from Recruits with Mild Respiratory Diseases. NM 52 05 04.4, 13 August 1957.
2. Observations on L Forms of Beta-Hemolytic Streptococci. NM 52 06 04.5.1, 30 September 1957.

Naval Air Development Center, Johnsville, Pa.

1. Effects of Moderate and Low Luminances and Various Durations of Pre-Exposure on Dark Adaptation. Report No. 3. NM 001 110 300, 2 May 1957.
2. Effect of Positive Acceleration on Visual Reaction Time. Report No. 4. NM 17 01 12.1, 12 August 1957.
3. Spatial Summation of Pain, Report No. 14. NM 19 01 12.1, 19 September 1957.

Naval Medical Field Research Laboratory, Camp Lejeune, N. C.

1. Development of a Battalion Aid Station for Vertical Envelopment Use (Packaged Aid Station). NM 91 01 09.1, November 1957.

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Food Service Management Course

Applications are desired from interested eligible officers for the 2-year course of instruction in Food Service Management convening in September 1958 at the School of Hotel Administration, Cornell University, Ithaca, New York. Eligibility requirements are as follows:

1. Lieutenant (jg) or Lieutenant, Medical Service Corps (Supply and Administration Section), Code 2300 officers only.
2. At least 3 years' commissioned service, preferably including experience in food service operations.
3. Graduate of the course in Hospital Administration conducted at NSHA, NNMC, Bethesda, Md.

Fiscal year 1959 training requirements indicate that 6 training billets will be available. Applicants should have both aptitude and a sincere motivation for future assignments in the Food Service Divisions of naval hospitals. Upon completion of training, officers may normally expect such assignments through the grade of Lieutenant Commander.

After final selection, arrangements for attendance at the University will be made by the Bureau.

Requests should be submitted to reach the Bureau not later than 1 March 1958 and must include the following information:

1. Resume of educational background
2. Summary of experience relating to Food Service operations
3. A separate paragraph stating:

"I agree not to tender my resignation while attending the course requested. I further agree to serve on active duty after completion of this instruction for a period of 1 year for each half-year or fraction thereof of instruction received, and I will not submit my resignation during this period of obligated service. I understand that this period of service is in addition to that for which I may be otherwise obligated and may not be performed concurrently. I further understand that acceptance of my resignation, if submitted after completion of instruction and obligated service incident thereto, will be subject to the pleasure of the President of the United States in accordance with the terms of my commission." (MSCDIV, BuMed)

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From the Note Book

1. Chief Medical Service Warrant C. A. Murphy USN has been admitted to practice Law before the Supreme Court of the State of California. Mr. Murphy has been admitted to practice before the Supreme Court of New York and has been certified by the Judge Advocate General of the Navy as Trial and/or Defense Counsel of the General Courts Martial of the Armed Forces of the United States. (TIO, BuMed)
2. LT Joseph G. Rossi MC USN was certified by the American Board of Pediatrics on 7 December 1957. (USNH, Philadelphia, Pa.)
3. Research grants totaling \$7,634,327 were awarded during the month of December 1957 by the National Institutes of Health. Non-Federal scientists and institutions throughout the nation received a total of 545 grants to support research in medical and related sciences. Of the 545 grants, 309 totaling \$4,895,925 have been awarded for new projects. The remaining grants represent continuations or supplements. (PHS, HEW)
4. For the week ended January 11, 1958, the number of deaths from all causes in the 114 large cities was 13,542 as compared with 12,152 for the previous week. Increases occurred in all areas except the West North Central Division. Deaths from influenza and pneumonia totaled 632 for the current week as compared with 534 for the previous week. The average number of deaths from influenza and pneumonia per week since December 1, 1957, was 556 as compared with 382 for the same period last year. (PHS, HEW)
5. Dentists operate in a field rich in bacterial life which includes some pathogens. A study revealed that cultures from plastic pens, glass-bracketed tables, and metallic light handles showed growth. The cultures yielded hemolytic staphylococcus albus, nonhemolytic Staphylococcus albus, Streptococcus viridans, E. coli, Ps aeruginosa, Staphylococcus aureus and B subtilis. A vigorous rubbing for 15 seconds with gauze saturated with 1-1000 aqueous solution of benzalkonium chloride will remove the organisms without damage to the apparatus. (J. Dent. Res., December 1957; J.H. Neff, S.L. Rosenthal)
6. This report presents the experience of continuous long-term anticoagulant therapy observed from 1 to 10 years in 712 patients with one or more myocardial infarctions. Such therapy is practical, feasible, and economical. The use of a simple capillary blood prothrombin test made the management inexpensive and practical. (Ann. Int. Med., December 1957; B. Manchester, M.D.)

7. For years, investigators have sought to explain how chronic hypoxic states, pulmonary disease, right-to-left intracardiac shunts, and high altitudes cause polycythemia. Studies have shown that red cell overproduction by the sternal bone marrow was not due to direct stimulation of the marrow by hypoxia, nor was it due to low cerebral oxygen levels. A circulating humoral substance seemed responsible. This erythropoietic stimulating factor has recently been termed "erythropoietin." It appears that erythropoietin is a hormone that regulates the rate of erythropoiesis. (GP, January 1958; J. C. Rose, M.D.)
8. Scalene node biopsy is a valuable diagnostic adjunct and supplements other established diagnostic routines. A positive finding of carcinoma by biopsy is a contraindication to exploration for carcinoma of the lung. Positive findings in biopsy material must be interpreted along with the clinical findings. Granulomatous lesions are not always sufficiently specific to resolve a doubtful diagnosis. (Am. Rev. Tuberc., December 1957; S. M. Scott)
9. The technique and instrumentation of left heart catheterization by the transbronchial route are described. More than 500 catheterizations have been performed at the National Heart Institute without mortality or serious morbidity. The procedure has been found useful in a variety of clinical investigations and in the preoperative selection and postoperative assessment of patients with valvular heart disease. (Circulation, December 1957; A. G. Morrow, M.D., et al.)
10. Twenty-five comminuted fractures of the distal end of the radius treated by primary resection of the distal ulna and closed reduction of the radius are discussed in Am. J. Surg., January 1958; O. C. Hudson, M.D., T. J. Rusnack, M.D.

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BUMED NOTICE 10390

8 January 1958

From: Chief, Bureau of Medicine and Surgery
To: All Bureau of Medicine and Surgery Managed Activities
Subj: Outmoded electrical distribution systems; survey of

This notice invites attention to a hazardous situation that is known to exist in the electrical distribution systems of many Bureau of Medicine and Surgery managed activities.

BUMED INSTRUCTION 11240.2A

8 January 1958

From: Chief, Bureau of Medicine and Surgery
To: Activities under the Management Control and Financial Responsibility of BuMed
Subj: Annual review of requirements for ambulances and special medical and non-passenger carrying vehicles; construction equipment; and fire fighting, utility, and materials handling equipment
Ref: (a) BuDocksInst 11200.2A of 31 July 1957, Technical Publication NavDocks TP-Tr-1 revised July 1957
(b) BuMedInst 10490.1 of 14 August 1952, Subj: Materials handling equipment; maintenance and replacement standards for

This instruction implements the Annual Allowance and Requirements Review procedures promulgated by SecNav Instruction 11240.13 in order to ascertain replacement and augmentation requirements for subject vehicles and equipment for use in planning and preparation of the Bureau of Medicine and Surgery Annual Budget Estimates. This data is necessary to assist the Bureau in support of its position during budgetary hearings.

BuMed Instruction 11240.2 is canceled and superseded by this Instruction.

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BUMED INSTRUCTION 6700.13B

8 January 1958

From: Chief, Bureau of Medicine and Surgery
To: Distribution List
Subj: Initial outfitting lists of medical and dental material for naval vessels
Ref: (a) BuMedInst 6700.14A

This instruction promulgates the policies relative to the use of medical and dental initial outfitting lists for naval vessels. BuMed Instruction 6700.13A is canceled.

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RESERVE SECTION

Hospital Corps Division 4-2 Officially Activated

At 8:30 p. m., on Friday, 8 November 1957, Hospital Corps Division 4-2 was formally commissioned at the U. S. Veterans Administration Hospital in the Oakland District of Pittsburgh, Pa.

The activation of this, the newest hospital corps division, marked a two-fold advance in the Navy's Medical Reserve Program. First, it signified the progressive expansion of the hospital corps training program; second, it was another step forward in the growing cooperative program between the U. S. Navy and the Veterans Administration.

The ceremony was conducted at the Veterans Hospital recreation hall. Dr. Thomas Parran, former Surgeon General of the U. S. Public Health Service, and now Dean of the University of Pittsburgh's Graduate School of Public Health, was the main speaker. Distinguished guests included RADM James M. Smith USN (Ret) and RADM Richard H. Lambert USN. CDR Bernard F. Duwell MSC USN, Medical Administrative Officer, Fourth Naval District, represented the Commandant, Fourth Naval District, and read the commissioning directive. After the formal ceremony, an official tour of the Navy's facilities at the hospital was conducted. The use of the Veterans Administration Hospital with its excellent clinical and laboratory facilities affords a high degree of technical training and professional instruction to the members of the unit.

At present, Hospital Corps Division 4-2 occupies a complete ward at the hospital. This includes classroom and office space in addition to the usual ward facilities. The Commanding Officer is CDR James F. Conner MC USNR, Director of Professional Services at the above hospital; the Executive Officer is LT Edward E. Longabaugh MC USNR, 502 Kerrwood Road, Pittsburgh 15, Pa. Forty-three enlisted personnel and six officers comprise the unit's membership. Drills are held each Wednesday night.

Eligible inactive Naval Reserve Medical Department personnel residing in the Pittsburgh area interested in affiliating with Division 4-2 should contact CDR Conner at the above address.

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Physical Medicine in General Practice - NavPers 10735

Since World War II, great advances have been made in physical medicine especially with regard to therapeutic techniques for the treatment of

physically disabled. This course is an up-to-date survey embracing the entire field of physical medicine which includes both "methods" and "clinical applications." It describes physical measures including occupational therapy and medical rehabilitation. It is written for the general practitioner with special emphasis placed on those simple and practical procedures that can be performed aboard ship or at small medical facilities without costly equipment or specialized training conditions. However, the more complex and demanding techniques are also explained. Familiarity with the simple procedures will enable Medical Department personnel to apply them to specific clinical problems. It is important to note that knowledge of the more complicated methods and applications will prepare personnel for collaboration with physical therapy specialists.

The course consists of seven (7) objective type assignments and is evaluated at twenty-one (21) Naval Reserve promotion and non-disability retirement points.

Applications for the course should be submitted on Form NavPers 992 (Rev 1-57) with appropriate changes in the "To" line of the address and forwarded via official channels directly to the Commanding Officer, U. S. Naval Medical School, National Naval Medical Center, Bethesda 14, Md.

(NavMed School, NNMC, Bethesda, Md.)

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SUBMARINE MEDICINE SECTION



British Views on Underwater Swimming and Diving

At a meeting of the British Association (Physiology Section) on 11 September 1957, the speakers were Dr. H. J. Taylor (R.N. Physiology Laboratory, Alverstoke), Captain W. O. Shelford, R.N., ret. (Siebe Gorman and Co., Ltd., and M. Frederic Dumas (Groupe d'Etudes et de Recherches Sous-marines Toulon). These are names well known to the diving fraternity. Doctor Taylor, a career physiologist in the field of diving medicine made the following points concerning sport diving with self-contained apparatus (scuba): Diving is dangerous to the unknowing, amateurs should join recognized clubs, each diver should be sufficiently knowledgeable to service

his own equipment, study the subject of diving, never dive alone, avoid the use of oxygen sets.

Doctor Taylor pointed out that, apart from the air containing spaces, the body for all intents and purposes is incompressible. In a recent record dive (presumably not the dive to 540 feet in Loch Fyne made by P. O. Diver 1st class W. Ballard using helium-oxygen in a helmet suit from HMS Reclaim, Captain W. O. Shelford, R. N., Commanding, in 1948), Doctor Taylor pointed out the body was subjected to a pressure of 17 tons per square foot without harm. This implies that the medium breathed must be at the pressure to which the diver is subjected.

A swimmer holding his breath and descending will at around 100 feet (4 atm. abs.) have his lung volume compressed to about the volume of the residual air (that volume left in the breathing system after a maximum exhalation). To descend further would increase the pressure, decrease the volume and produce a "lung squeeze." Fluid and blood may be forced into the lungs and the damage may be severe.

Various other problems were discussed including barotrauma and oxygen toxicity. Some success at reducing the effects of oxygen toxicity by use of a drug is hinted. Studies on nitrogen narcosis using the electroencephalogram are reported. Normally, when a subject concentrates on a problem, the occipital alpha-rhythm shows an abrupt fall (blocking). When exposed to 4 atm. of air, the time to give an answer is increased and in time the blocking phenomenon disappears. It was found that the length of exposure required to abolish blocking is inversely proportional to the square of the pressure. This, Doctor Taylor interpreted as a suggestion of a diffusion process. When nitrogen is replaced by helium, the blocking is not abolished.

Doctor Taylor pointed out that although a number of decompression schedules have been proposed, none is entirely satisfactory because of a lack of fundamental information regarding inert gas exchange in tissue. He commented on the subject of the single tissue concept of decompression and the subject of "silent bubbles" which do not cause decompression illness. The voice changes associated with the use of helium-oxygen mixtures were mentioned and reference was made to a world's record "deep dive to 600 feet" (1956) during which the changes were so pronounced as to make it almost impossible to understand conversation.

Captain Shelford discussed various kinds of diving equipment. He made reference to work by J. B. S. Haldane and K. W. Donald related to mixed gas diving using a semi-closed circuit scuba giving partial rebreathing with a flow fixed by a depth compensated regulator which delivers a constant mass of gas at any depth. He made mention of a French mixed gas scuba which supplies gas on demand without use of a regulator. Dumas showed three films on various underwater activities of the group at Toulon.

* Nature, Vol. 180, No. 4592, 2 November 1957

DENTAL**SECTION**Dental Member of Inphexan

Captain Charles E. Meyers DC USN with other members of the International Physiology Expedition, Antarctic, departed for Christchurch, N. Z., in early December 1957, on the first leg of the trip to the Antarctic. The six environmental physiologists with 8000 pounds of scientific equipment will spend two months at McMurdo Sound making specific observations on themselves and on British and American personnel in the area. Captain Meyers of Naval Research Unit No. 1 was assigned to the expedition which is sponsored by the Office of Naval Research to conduct a series of investigations to determine if changes occur in the oral flora when individuals live in a practically germ free low temperature environment for prolonged periods. In addition, he will join with the following expedition members in the wide variety of determinations pertinent to human body response and adaptation to cold: Dr. Nello Pace, Professor of Physiology, University of California; Dr. Griff Pugh, British Physiologist; Dr. Gerhard Hilderbrand, German Physiologist; Mr. William Siri, Biophysicist, Donner Laboratory; and Major James Adam, British Army Medical Officer.

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Naval Dental School Establishes
Radioisotope Branch

The U. S. Navy Dental Corps is faced with dental health and environmental problems that can only be solved by intensive clinical and laboratory investigation. Many of these investigations will be pursued within the "Nuclear Age" program of the U. S. Navy. Supervision of clinical and laboratory studies pertaining to dentistry will be under the direction of a newly established Radioisotope Branch at the Naval Dental School, National Naval Medical Center, Bethesda, Md. The installation of a nuclear reactor at the NNMC makes possible for the first time in the history of dentistry the production of short half life radioisotopes locally in close proximity to the patients in whom they may be used. Having this facility available in the Medical Center will open up an entirely new field in the utilization and investigation of radioactive isotopes of short half life which will provide the same diagnostic information as the longer half

life isotopes without subjecting the patients to excessive amounts of internal body radiation.

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New Dental Clinic at Long Beach, California

The Secretary of the Navy recently established the U. S. Naval Dental Clinic, U. S. Naval Base, Los Angeles, Long Beach, Calif. The Dental Service now has ten naval dental clinics providing services to fleet and shore activities.

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PREVENTIVE MEDICINE SECTION

New Names for Old Bacteria

In October 1957, the seventh edition of Bergey's Manual of Determinative Bacteriology (Williams & Wilkins) was published revising the edition of January 1948. This manual, first published in 1923, is widely used by bacteriologists as a standard reference. The new edition contains many reclassifications and nomenclature changes which are of interest to those who work with all types of bacteria. Members of the Medical Department will be chiefly concerned with those changes which apply to common pathogenic bacteria because they will appear in medical literature and will be seen on laboratory reports with increasing frequency. However, names from the previous editions will probably continue to be used by some for a long time. This could lead to some confusion unless some familiarity with the old and new names is attained.

Fortunately, a review of the text discloses that not many commonly encountered bacterial pathogens have been given new labels in the new edition. By citing a few randomly selected examples of changes, it is hoped that those who have interest in this field may be encouraged to examine this latest edition to determine for themselves the extent of these alterations. Obviously, it is impossible in this short article to consider separately each bacterium of medical interest.

All of the pathogenic species of the genus *Micrococcus* have been incorporated into a single species of the revived genus *Staphylococcus*. *Micrococcus pyogenes* var. *aureus* and var. *albus*, *Micrococcus citreus*, and *Micrococcus auranticus* are now all described as *Staphylococcus aureus*. Chromogenicity which has been previously utilized as an important factor for the differentiation of species within this genus is now considered more as variation within the species. This organism, associated with infections and with food poisoning, has become increasingly important in recent years.

In the sixth edition, 151 separate species of *Salmonella* were recognized. In the seventh edition, this number has been reduced to 10. This radical reduction has been compensated by the introduction of the Kauffman-White Schema of 1955 (from Edwards and Ewing) for the serological typing of salmonellae which lists 343 salmonella serotypes. In future investigations of outbreaks of food infections attributable to a salmonella, it may be expected that laboratories will report positive salmonella findings more by serological antigen grouping and typing symbols and less by species names. It is noted that *Salmonella typhosa*, the causative agent of typhoid fever, retains species rank.

The genus responsible for bacillary dysentery, *Shigella*, now contains 8 species in contrast to the 11 species described in the sixth edition. There have been several changes made in the species names. Four serological groups are delineated for antigenic determinations within the genus.

The pathogen of whooping cough or pertussis, *Hemophilus pertussis* in the sixth edition, has been placed in a new genus which honors Bordet who, with Gengou, first isolated it. In the seventh edition, this organism therefore, bears the name *Bordetella pertussis*. The genus *Haemophilus* has acquired an "a" in its spelling and has retained most of the other species previously assigned to it.

The two varieties of *Mycobacterium tuberculosis* presented in the sixth edition have been given separate species rank in the seventh edition. *Mycobacterium tuberculosis* var. *hominis* is now simply *Mycobacterium tuberculosis*. *Mycobacterium tuberculosis* var. *bovis* has become *Mycobacterium bovis*.

There have also been changes in the terminology used for some of the less frequently encountered pathogens. For example, the genus *Malleomyces* has ceased to be and its members have been reclassified so that they now appear under rather dissimilar genera. *Malleomyces mallei*, the glanders bacillus, has been restyled as *Actinobacillus mallei*, whereas *Malleomyces pseudomallei*, the pathogen of the glanders-like Melioidosis, is now designated *Pseudomonas pseudomallei*.

Although there have been some consequential nomenclature revisions in the seventh edition, as the preceding examples indicate, most of the familiar pathogenic species of such important genera as *Streptococcus*,

Diplococcus, Klebsiella, Corynebacterium, Clostridium, Pasteurella, Neisseria, Treponema, Borrelia, as well as those of lesser importance, have not been subjected to extensive categorical alterations. Most names remain as they were and, therefore, the introduction of the few new terms as replacements for the old into the language of the laboratory may be expected to proceed smoothly with little confusion.

The revisions in terminology and in classification represent advances in descriptive bacteriology as continuing research contributes increased knowledge and understanding of the relationships of bacteria to each other.

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The Solitary Circumscribed Pulmonary Nodule

The solitary circumscribed pulmonary nodule may be the presenting form of a primary resectable pulmonary malignancy; consequently, it has become the "hunting ground" of the thoracic surgeon in recent years. The logic of the situation has been that primary lung cancer can be seen in persons as young as 21 years of age and because the patient is seldom made worse by surgery, surgery is advantageous. Even if the lesion turns out to be granuloma, the procedure supplied a definite diagnosis and made treatment and prognosis possible.

In May 1956, however, Holin and associates presented a study consisting of 666 patients with solitary noncalcified pulmonary nodules discovered in a chest roentgenogram survey in Cleveland in 1949. The persons in this series were followed between 1949 and 1954 by chest roentgenograms and operative, postmortem, or clinical findings with 97% success. The observations for the 5-year period are shown in Table 1.

TABLE 1.--Solitary Circumscribed Noncalcified Pulmonary Nodules
One Centimeter or More in Diameter

	Percent
Malignant	3.0
?Malignant	1.0
Tuberculosis	9.0
? Tuberculosis	9.6
Other	2.6
Undetermined	<u>74.7</u>
	100.0

The most remarkable finding was that only 3% were proved malignant while another 1.1% were possible malignancies. The 2.6% indicated as "Other" included bronchogenic cyst, hamartoma, and other rarer causes of pulmonary nodules. The 74.7% of undetermined nodules remained undiagnosed throughout the representing 5-year study.

The age-specific death rate for cancer of this study group was essentially the same as for the general population. All nodules which proved to be cancer were 2 centimeters in diameter or greater when first seen. However, the literature contains reports of exceptions to this finding. Surprisingly, the most common cause of death for the study group was tuberculosis. While none of the lesions were calcified at the start of the study, 27% became so by the end of the 5-year period of observation. Even excluding all males below 45, all females, and all lesions subsequently showing calcification, the incidence of malignancy in the group was only 10%.

In striking contrast, cumulative statistics from 24 papers reporting 1423 surgically treated cases of solitary circumscribed pulmonary nodules revealed an incidence of malignancy in 39%. Three percent of this group had bronchial adenomas which were included in the malignant group because of the frequent malignant behavior of this lesion.

Table 2.--Solitary Circumscribed Pulmonary Nodule--1423 Cases Proved
by Operation from Literature

	Percent		Percent
Malignant tumors	39	Granulomas	40
Primary	31	Tuberculosis	17
Metastatic	5	Histoplasmosis	1
Adenoma	3	Coccidioidomycosis	3
Benign tumors	13	Lipoid	1
Hamartoma	6	Other	1
Bronchial cyst	4	Questionable cause	17
Other	3	Other	8

Several other series are presented with average age of the groups being about 30 years and the average incidence of malignancy in solitary circumscribed nodules being 15.8%. The difference in implication between the incidence of cancer in the population survey in all other series raises the question of whether the person with symptoms referable to the chest purposely did not have a chest roentgenogram made in 1949. The 1423 patients cited from the literature apparently came to the surgeon largely because of symptoms or because the lesion was seen on roentgenogram.

There can be no doubt that a patient with a nodule who has been screened by a competent observer and then referred to a thoracic surgeon has a greater chance of having a pulmonary malignancy than a person not so screened. This may be the accounting factor in the difference in statistics between the Holin study and the literature.

Certain clinical features of a solitary circumscribed pulmonary nodule worthy of note are:

1. The presence of a small amount of calcium in the lesion does not exclude malignancy.
2. Total calcification or the presence of concentric laminations is indicative of an inflammatory origin (usually due to histoplasmosis).
3. The presence of spicules radiating from the lesion suggests malignancy.
4. The presence of a cavity increases the chance of the lesion being inflammatory, but does not exclude malignancy.
5. Infectious granulomas are usually located peripherally within millimeters of the periphery of the lung or the lobar septa, whereas malignancies are usually more central.
6. The presence of "daughter" lesions raises very significantly the chance of an infectious origin (in fact, there is no report in the literature of a lesion with "daughter" lesions being malignant).
7. The presence of umbilication increases the likelihood of malignancy, but lesions of tuberculosis and hamartoma also frequently exhibit this characteristic.
8. Change in size and shape of the lesion in serial roentgenograms is indicative of malignancy, but malignant nodules have been known to remain unchanged for a period of 12 months and longer.
9. A nodule in a person below 35 years of age has only a small chance of being due to malignancy.
10. Malignancy and, in fact, the presence of nodules of any kind occur much less frequently in females than in males.
11. The absence of symptoms reduces the chance of a lesion being malignant, but by no means excludes the possibility.
12. Skin tests are helpful, but are not diagnostic because carcinoma can obviously exist in a person who has had histoplasmosis.
13. Geographic location of the patient in or from an area in which fungus infection is endemic is suggestive, but unfortunately there is no reliable way to make the diagnosis.
14. A positive finding of M. tuberculosis in sputum militates against, but does not exclude, malignancy.

The possibility of saving a person's life by removing a bronchogenic carcinoma when it is in the stage of the solitary circumscribed pulmonary

nodule should be emphasized. Exploratory thoractomy carries a mortality of less than 1%. Unfortunately, too many of these lesions prove to be inoperable or operation fails because of metastases. When the chance of having cancer is as low as 2 or 3% in a person, and when one can expect no more than a third of these to be cured, the chance of saving a life with such an operation is no greater than the operative risk. When the chance of a nodule being cancer appears to be 5% or more, the chance of being able to perform curative surgery outweighs the operative risk. (Mitchell, R.S., Taylor, R.R., The Solitary Circumscribed Pulmonary Nodule: Arch. Int. Med., 100: 780-792, November 1957)

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The Mosquito Problem in the Pearl Harbor Area

A severe mosquito problem has afflicted the Pearl Harbor area since 1948. Control measures have consisted primarily of insecticidal fogging which, before 1956, had been costing the military activities in the area an estimated total of \$30,000 to \$50,000 per year.

The problem is caused almost entirely by one species of mosquito, *Culex quinquefasciatus* Say, which bites only at night and which may breed in any type of ground pool or container. However, the only significant sources during most of the year are in the sugar cane areas, primarily on Waipio Peninsula where cane wash water provides a highly prolific medium in which the mosquito larvae develop in tremendous numbers. Continuous light trap and breeding surveys conducted during the past 3 years have disclosed a complete correlation between mosquito abundance and the sugar harvest season from March to October. These investigations have also revealed that the adult mosquitoes disperse in all directions from the breeding sources and may cause significant annoyance as far as 3 to 4 miles. This distance from Waipio includes all activities from Pearl City, through Makalapa, Naval Housing Areas, and Hickam Air Force Base, to Fort Kamahameha.

It is only during the wet months, November to March, that mosquito breeding in areas outside of Waipio Peninsula contributes significantly to the problem and then it is in a much lower degree.

By the middle of 1956, sufficient evidence had accumulated to demonstrate that areas outside of those in which cane wash water was used were of no real significance as breeding sources during the dry summer months. Attention was then focused on the breeding source control problem at Waipio. A number of additional control measures were recommended and adopted by the Oahu Sugar Company. These resulted in a very pronounced reduction in mosquito abundance during 1957 as compared with prior years. Observations

and field trials during the current season have disclosed certain further deficiencies in the Waipio control program which have permitted at least two large broods to emerge and result in considerable mosquito annoyance, particularly in the Shipyard-Hickam Area. Among further recommendations for obtaining the required control at Waipio is the assignment of responsibility for surveillance and larviciding to a higher grade of employees. The general manager of the Oahu Sugar Company has agreed with this and other proposals.

The attainment of fully effective control of breeding sources on Waipio, which the results of the 1957 program clearly show to be feasible, will practically eliminate the mosquito problem in the Pearl Harbor Area from April through November. There will remain the problem of controlling the winter sources which are dependent upon rainfall. However, these sources have never exhibited the extremely high mosquito production which occurs in the cane wash water sources. They occur primarily in limited areas of Makalapa Crater, scattered containers and water catchments in several areas, and in pasture-land-ground pool type sources east of Makalapa and in the Pearl City and Waipio Areas. Recommendations for control of these sources include elimination by filling and drainage wherever possible, the establishment of regular surveillance, spot larviciding schedules by cognizant Public Works Departments, and continued cooperation with the Territorial Bureau of Mosquito Control in development of similar measures for control in civilian areas.

The more thoroughly source-control methods are applied the less will be the need for the inefficient adult control operations other than screening. The maintenance of complete and tight screening is emphasized because of the many instances noted where screening was not adequate. Even a very low level of mosquito abundance may cause annoyance when personnel are sleeping or resting in unscreened or imperfectly screened quarters.

Observations of outdoor adult control by insecticidal fogging have produced no evidence that over all mosquito populations are significantly reduced. This seems in part due to the prevailing trade winds. During 1956 and 1957, efforts were made through the cooperation of public works officers at the Public Works Center and the Naval Shipyard to limit fogging to periods of favorable wind conditions and to secure fogging when light traps indicated that mosquito abundance was low. Fogging costs at these two activities alone have been reduced from an estimated \$26,000 in 1956 to \$12,000 in 1957. Observations and evidence in reports of controlled tests indicate that under ideal test conditions the best mosquito reduction obtainable is usually less than 65%, and that, for only a few hours after treatment. Therefore, further de-emphasis of fogging is recommended. In the Pearl Harbor Area, available funds will provide more effective mosquito reduction if applied in control of breeding sources rather than to temporary and inefficient adult control measures. (U. S. Navy Preventive Medicine Unit No. 6, The Mosquito Problem in Pearl Harbor Area, September 6, 1957)

Correction

In the Medical News Letter for 20 December 1957, (Vol. 30, No. 12) the following error appeared on Page 21 in the article headed "New Film Releases."

The series of four films titled "Basic Nursing Care" was given the number MN-8567. The correct number is MN-8576. Titles in the series are repeated here for your convenience:

- MN-8576-A: Making an Unoccupied Bed
- B: Making a Recovery Bed
- C: Making the Occupied Bed
- D: The Bed Bath

The usual distribution of prints is being made to film libraries. Where prints are not available, inquiry may be addressed to the Film Distribution Unit, Training Division, Bureau of Naval Personnel, Department of the Navy, Washington, D. C.

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